

CLAIMS:

1. A manufacturing method of a hydroxyapatite complex including a hydroxyapatite sintered compact and a polymer-based material, comprising the step of:
 - a) reacting the hydroxyapatite sintered compact with a functional group of the polymer-based material, that contains at least one functional group selected from a group consisting of an isocyanate group and an alkoxysilyl group, so as to chemically bond the hydroxyapatite sintered compact and the polymer-based material.
2. A manufacturing method of a hydroxyapatite complex including a hydroxyapatite sintered compact and a polymer-based material, comprising the steps of:
 - a) introducing at least one functional group selected from a group consisting of an isocyanate group and an alkoxysilyl group into the polymer-based material; and
 - b) reacting the hydroxyapatite sintered compact with the functional group of the polymer-based material so as to chemically bond the hydroxyapatite sintered compact with the polymer-based material.
3. The manufacturing method of a hydroxyapatite complex as set forth in claim 2, wherein:
 - the step (a) is performed using a compound, that contains a reactive functional group and at least one functional group selected from a group consisting of an isocyanate group and an alkoxysilyl group, so as to react the reactive functional group with the polymer-based material.
4. The manufacturing method of a hydroxyapatite complex

as set forth in claim 3, wherein:

the compound is a silane coupling agent.

5. The manufacturing method of a hydroxyapatite complex as set forth in claim 2, further comprising the step of:

c) introducing an active group into the polymer-based material before the step (a),

wherein:

the step (a) is performed using a compound, that contains a reactive functional group and at least one functional group selected from a group consisting of an isocyanate group and an alkoxysilyl group, so as to react the reactive functional group with the active group of the polymer-based material.

6. The manufacturing method of a hydroxyapatite complex as set forth in claim 5, wherein:

the compound is a silane coupling agent.

7. The manufacturing method of a hydroxyapatite complex as set forth in claim 1, wherein:

the polymer-based material is a medical polymeric material.

8. The manufacturing method of a hydroxyapatite complex as set forth in claim 7, wherein:

the medical polymeric material is a silk fibroin.

9. A hydroxyapatite complex in which a hydroxyapatite sintered compact and a polymer-based material containing an isocyanate group and/or an alkoxysilyl group are chemically bonded,

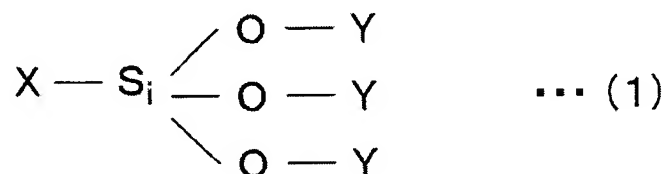
wherein:

the hydroxyapatite sintered compact is chemically bonded directly to the isocyanate group and/or the alkoxysilyl group of the polymer-based material.

10. A hydroxyapatite complex in which a hydroxyapatite sintered compact and a polymer-based material containing an alkoxysilyl group are chemically bonded,

wherein:

the hydroxyapatite sintered compact is chemically bonded to the polymer-based material with a molecular chain expressed as:



where X expresses the polymer-based material, and Y expresses the hydroxyapatite sintered compact.

11. A medical material made of a hydroxyapatite complex in which a hydroxyapatite sintered compact and a polymer-based material containing an isocyanate group and/or an alkoxysilyl group are chemically bonded,

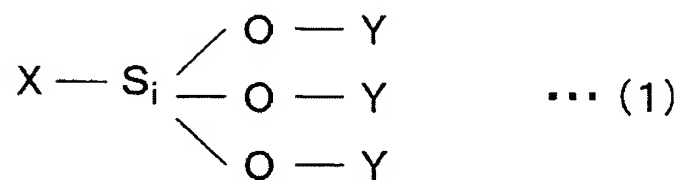
wherein:

the hydroxyapatite sintered compact is chemically bonded directly to the isocyanate group and/or the alkoxysilyl group of the polymer-based material.

12. A medical material made of a hydroxyapatite complex in which a hydroxyapatite sintered compact and a polymer-based material containing an alkoxysilyl group are chemically bonded, wherein:

the hydroxyapatite sintered compact is chemically bonded to

the polymer-based material with a molecular chain expressed as:



where X expresses the polymer-based material, and Y expresses the hydroxyapatite sintered compact.